Trend Study 21R-1-03

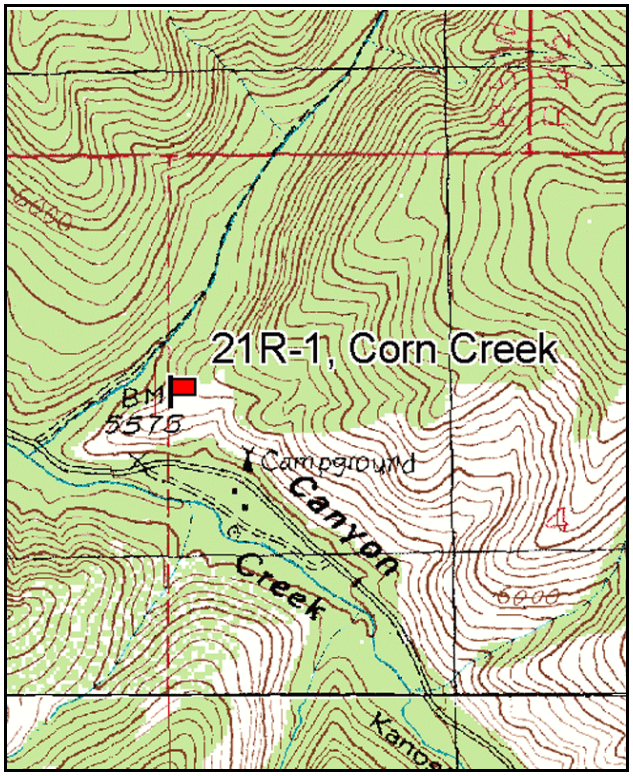
Study site name: Corn Creek . Vegetation type: Burn-seeded .

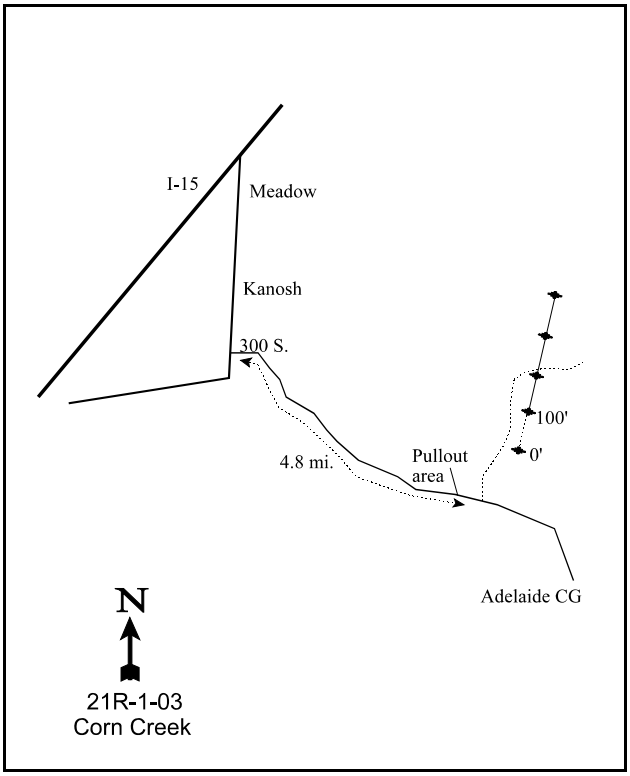
Compass bearing: frequency baseline 28 degrees magnetic.

Frequency belt placement: line 1 (11ft & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft). Rebar: Belt 1 on 2ft and belt 5 on 1ft.

LOCATION DESCRIPTION

From Kanosh, go west on 300 South for 4.8 miles to a pullout (trail head) area on the left side of the road. From the pullout, walk up the road 100 ft to trail on the left side of the road (If you reach Adelaide campground you have gone too far). Follow this trail for about a 1/4 mile or until the ridge opens up on top. The 0' stake is 30 ft to the right of the trail once the ridge opens up.





Map name: Sunset Peak

Diagrammatic Sketch

Township 24S , Range 5W , Section 4

GPS: NAD 27, UTM 12S 4290267 N, 381422 E

DISCUSSION

Corn Creek - Trend Study No. 21R-1

This site was established in 1997 to monitor a burn and seeding that occurs on important winter and spring range for big game, primarily elk. The site slopes to the south at 2-10% and elevation is about 5,800 feet. The transect was placed on a ridgeline that runs northeast from Kanosh Canyon, and lies about 1/4 mile from Corn Creek. The site burned and was seeded in 1996. This transect is to monitor the recovery of the vegetation community following the burn. Elk used was moderate in 1997, while deer was minimal. Pellet group transect data estimated 54 elk days use/acre (134 edu/ha) in 1997 and 33 elk days use/acre (83 edu/ha) in 2003. Cattle use was estimated at 15 days use/acre (38 cdu/ha) in 1997, but no cattle pats were sampled in 2003. Most of the elk pellets in 2003 appeared to be from winter months.

Soils on the site are fairly shallow and rocky. Effective rooting depth was estimated at less than 10 inches. Average soil temperature was high in both surveys at over 70°F. Soils have a sandy loam texture and are slightly acidic (pH of 6.4). Organic matter is good at 3.1%. Erosion is low due to the abundance of herbaceous vegetation on the site as well as a fair amount of litter cover. Bare soil accounted for 14% and 17% of the soil surface in 1997 and 2003 respectively. An erosion condition class assessment rated soils as stable in 2003.

The browse component on this site is not well developed. Eleven species were sampled for density and/or average height and crown in 2003 but only chokecherry was frequent. Chokecherry density was estimated at 1,740 stems/acre in 1997, increasing to 3,300 stems/acre in 2003. Most of the population consisted of young plants in 1997 (92%) which explains the increase in population density. In 2003, mature plants made up the majority of the population (78%). Use was light, decadence low, and vigor normal on chokecherry in both 1997 and 2003. More preferred species such as serviceberry, true mountain mahogany, and Stansbury cliffrose were all measured for average height and crown, but occur in very low numbers on the site. None of these species were sampled in the density strips, thus population estimates are not available.

The herbaceous species on this site are diverse and productive, although two species, bulbous bluegrass and storksbill dominate. Bulbous bluegrass made up 46% of the grass cover in 1997 increasing to 69% in 2003. Bulbous bluegrass is a low value perennial that has many similarities to annual species. Bulbous bluegrass is small statured, mat forming, and cures early in the season providing little forage during summer months. Storksbill, an annual forb contributed nearly 13% average cover in 2003 which accounts for 64% of the total forb cover. Combined, bulbous bluegrass and storksbill accounted for over 60% of the total vegetation cover on the site in 2003. More desirable perennial grasses include crested wheatgrass, bluebunch wheatgrass, slender wheatgrass, and Sandberg bluegrass. Of these, crested wheat and slender wheatgrass declined in frequency in 2003, while bluebunch wheatgrass and Sandberg bluegrass remained stable. Perennial grasses are found in scattered clumps with cheatgrass occurring where perennials are less abundant. With the exception of bulbous bluegrass, cheatgrass had the highest nested frequency value of any other grass species in 1997, but decreased significantly in 2003. The forb component is diverse with several desirable species being present. Pale agoseris, tapertip hawksbeard, redroot eriogonum, sulfur eriogonum, prickly lettuce, and yellow salsify are species that would provide spring forage for elk. Less desirable species include thistle, dandelion, and several annual species.

1997 APPARENT TREND ASSESSMENT

Soils appear stable especially on a newly burned site. Although herbaceous perennials occur in scattered patches, bare soil is relatively low at 14%, and vegetation and litter appear to be sufficiently holding soils in place. Bulbous bluegrass and cheatgrass are abundant where seeded species have not established, but these species do provide good soil protection. The browse component is obviously in a downward condition at the

present time following the fire. Only chokecherry is moderately abundant. Preferred species are few. The herbaceous component is diverse but dominated by annuals and low value species primarily bulbous bluegrass and cheatgrass. Overall, the herbaceous understory appears to be slightly down but should improve in the future as seeded perennials have time to become more established.

2003 TREND ASSESSMENT

Trend for soil is stable. Bare soil slightly increased, but litter and vegetation cover also increased. Soils are stable for the most part, and erosion is low. Trend for browse is slightly up. Although not highly preferred, chokecherry provides some forage for wintering animals and has an increased in density by 47% since 1997. Less desirable species such as broom snakeweed, Woods rose, and rubber rabbitbrush are present but have not increased. Trend for the herbaceous understory is slightly down. Bulbous bluegrass and storksbill are the dominate species and too many weedy increasers are present on the site. Crested wheatgrass and slender wheatgrass both declined in abundance in 2003. Cheatgrass also declined which is a positive sign. Several desirable forbs are present on the site but occur in low densities. Perennial forbs declined in sum of nested frequency, while annual species increased.

TREND ASSESSMENT
soil - stable (3)
browse - slightly up (4)
herbaceous understory - slightly down (2)

HERBACEOUS TRENDS --
Management unit 21R, Study no: 1

Type	Species	Nested Frequency		Average Cover %	
		'97	'03	'97	'03
G	Agropyron cristatum	73	38	2.95	1.67
G	Agropyron intermedium	-	2	-	.01
G	Agropyron spicatum	29	45	.96	1.79
G	Agropyron trachycaulum	135	80	2.18	1.46
G	Bromus japonicus (a)	-	1	-	.00
G	Bromus tectorum (a)	206	94	3.67	1.06
G	Koeleria cristata	20	8	.36	.04
G	Poa bulbosa	360	388	10.19	19.23
G	Poa fendleriana	-	2	-	.03
G	Poa secunda	117	122	1.84	2.65
G	Sporobolus cryptandrus	8	-	.01	.01
Total for Annual Grasses		206	95	3.67	1.06
Total for Perennial Grasses		742	685	18.50	26.91
Total for Grasses		948	780	22.18	27.97
F	Agoseris glauca	2	33	.01	.45
F	Allium spp.	101	-	1.33	-
F	Antennaria rosea	-	2	-	.30

Type	Species	Nested Frequency		Average Cover %	
		'97	'03	'97	'03
F	Artemisia ludoviciana	13	30	.18	1.22
F	Astragalus spp.	-	6	-	.01
F	Balsamorhiza sagittata	9	-	.69	.15
F	Camelina microcarpa (a)	9	-	.39	-
F	Carduus nutans (a)	1	-	.00	-
F	Cirsium spp.	13	13	.93	1.52
F	Collomia linearis (a)	1	-	.00	-
F	Comandra pallida	31	9	.29	.09
F	Collinsia parviflora (a)	28	-	.28	-
F	Crepis acuminata	19	20	.26	.48
F	Epilobium paniculatum (a)	19	-	.11	-
F	Eriogonum cernuum (a)	11	-	.07	-
F	Erodium cicutarium (a)	3	265	.03	12.89
F	Erigeron spp.	25	-	.85	-
F	Eriogonum racemosum	-	4	.03	.02
F	Eriogonum umbellatum	8	7	.09	.21
F	Heterotheca villosa	32	51	1.78	2.36
F	Lathyrus brachycalyx	42	2	.48	.03
F	Lactuca serriola	5	-	.04	-
F	Linum lewisii	3	-	.03	-
F	Phlox longifolia	39	34	1.00	.17
F	Polygonum douglasii (a)	28	-	.25	-
F	Sanguisorba minor	-	2	-	.03
F	Taraxacum officinale	7	3	.16	.00
F	Tragopogon dubius	45	4	.32	.03
Total for Annual Forbs		100	265	1.13	12.89
Total for Perennial Forbs		394	220	8.54	7.10
Total for Forbs		494	485	9.68	19.99

Values with different subscript letters are significantly different at alpha = 0.10

BROWSE TRENDS --
Management unit 21R, Study no: 1

Type	Species	Strip Frequency '97	Strip Frequency '03	Average Cover % '97	Average Cover % '03
B	Artemisia tridentata wyomingensis	1	0	.38	-
B	Chrysothamnus nauseosus	0	0	.01	-
B	Eriogonum heracleoides	7	0	.50	-
B	Gutierrezia sarothrae	15	10	.16	.06
B	Prunus virginiana	13	15	1.00	4.43
B	Quercus gambelii	2	0	.76	-
Total for Browse		38	25	2.81	4.49

CANOPY COVER, LINE INTERCEPT --
Management unit 21R, Study no: 1

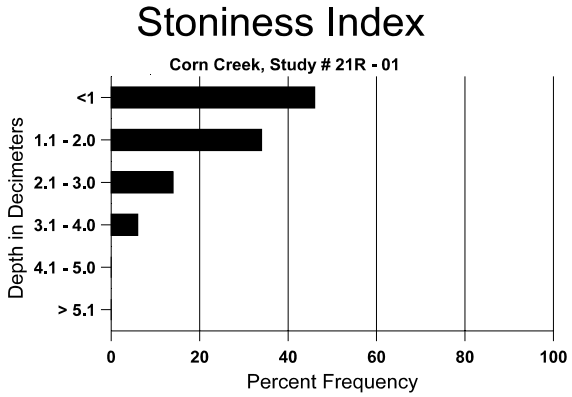
Species	Percent Cover '97	Percent Cover '03
Prunus virginiana	-	3.96
Quercus gambelii	2.20	-

BASIC COVER --
Management unit 21R, Study no: 1

Cover Type	Average Cover % '97	Average Cover % '03
Vegetation	32.26	50.62
Rock	10.16	7.10
Pavement	1.64	.43
Litter	35.57	39.31
Cryptogams	5.63	.14
Bare Ground	14.20	17.35

SOIL ANALYSIS DATA --
Management unit 21R, Study no: 1, Study Name: Corn Creek

Effective rooting depth (in)	Temp °F (depth)	PH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
9.6	70.8 (8.1)	6.4	54.0	29.2	16.8	3.1	11.0	185.6	0.7



PELLET GROUP DATA --
Management unit 21R, Study no: 1

Type	Quadrat Frequency '97	Quadrat Frequency '03	Days use per acre (ha) '97	Days use per acre (ha) '03
Elk	16	24	54 (134)	33 (83)
Deer	2	6	3 (7)	1 (2)
Cattle	4	2	15 (38)	-

BROWSE CHARACTERISTICS --
Management unit 21R, Study no: 1

		Age class distribution (plants per acre)					Utilization				
Year	Plants per Acre (excluding seedlings)	Seedling	Young	Mature	Decadent	Dead	% moderate	% heavy	% decadent	% poor vigor	Average Height Crown (in)
Amelanchier utahensis											
97	**0**	-	-	-	-	-	0	0	-	0	-/-
03	**0**	-	-	-	-	-	0	0	-	0	128/112
Artemisia tridentata wyomingensis											
97	**20**	-	-	20	-	-	100	0	-	0	21/41
03	**0**	-	-	-	-	-	0	0	-	0	30/57
Cercocarpus montanus											
97	**0**	-	-	-	-	-	0	0	-	0	-/-
03	**0**	-	-	-	-	-	0	0	-	0	87/72
Cowania mexicana stansburiana											
97	**0**	-	-	-	-	-	0	0	-	0	-/-
03	**0**	-	-	-	-	-	0	0	-	0	138/128
Eriogonum heracleoides											
97	**220**	-	-	220	-	-	0	0	-	0	9/11
03	**0**	-	-	-	-	-	0	0	-	0	-/-

		Age class distribution (plants per acre)					Utilization				
Year	Plants per Acre (excluding seedlings)	Seedling	Young	Mature	Decadent	Dead	% moderate	% heavy	% decadent	% poor vigor	Average Height Crown (in)
Gutierrezia sarothrae											
97	**720**	-	180	540	-	-	0	0	-	0	8/10
03	**200**	-	-	200	-	40	0	0	-	0	10/13
Mahonia repens											
97	**0**	-	-	-	-	-	0	0	-	0	-/-
03	**0**	-	-	-	-	-	0	0	-	0	4/6
Prunus virginiana											
97	**1740**	-	1600	140	-	180	7	8	0	0	-/-
03	**3300**	-	620	2580	100	780	0	0	3	2	18/16
Quercus gambelii											
97	**180**	80	120	60	-	80	0	0	-	0	-/-
03	**0**	-	-	-	-	-	0	0	-	0	104/100
Rhus trilobata											
97	**0**	-	-	-	-	-	0	0	-	0	-/-
03	**0**	-	-	-	-	-	0	0	-	0	52/89
Rosa woodsii											
97	**0**	-	-	-	-	-	0	0	-	0	-/-
03	**0**	-	-	-	-	-	0	0	-	0	10/13